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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			HSU, JONI	
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			2671	

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/752,833	Applicant(s) ZERPHY ET AL.	
	Examiner Joni Hsu	Art Unit 2671	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-34 is/are allowed.
- 6) ☒ Claim(s) 1-15 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.
2. Applicant's arguments, see pages 11-16, filed June 17, 2005, with respect to the rejection(s) of claim(s) 1 and 3-6 under 35 U.S.C. 102(b) and Claims 2 and 7-13 under 36 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Dye (US006002411A).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banks (US005796376A) in view of Dye (US006002411A).
6. With regard to Claim 1, Banks describes a display unit configured for use in a sign display panel (*electronic display sign including one or more display panels*, Col. 1, lines 8-11) comprising a central processing unit (42, Figure 3; Col. 5, lines 11-13); a display output device (26, Figure 1; Col. 3, lines 55-66); an interface (36, Figure 3) for receiving a plurality of frames and receiving a plurality of display instructions (*two interfaces to receive display information, display information consists of display data, sign controller commands, and memory addressing information*, Col. 4, lines 61-65). Banks also describes a memory (44) for storing software configured for execution by the central processing unit (*memory 44 used to store the software program that controls and coordinates the activities of the sign controller*, Col. 5, lines 31-37; *sign controller commands include a user defined variable associated with each display image that controls the frame display rate for the image, CPU 42 uses the variable*, Col. 5, lines 25-30), wherein the software comprises instructions for storing each of the plurality of frames (*display information consists of memory addressing information*, Col. 4, lines 63-65), and processing one of the frames to update the display output device (Col. 7, lines 19-28).

However, Banks does not teach an interface for first receiving a plurality of frames, and second receiving a plurality of display instructions, and upon receipt of each of the plurality of

display instructions, processing one of the frames to update the display output device. However, Dye describes an interface (IMC 140; Col. 9, lines 9-18), as shown in Figure 25, for first receiving a plurality of frames, and second receiving a plurality of display instructions (*multiple frames of an object are stored as display memory and the window assembler 240 assembles on a span line basis...display refresh list of pointers*, Col. 39, lines 15-29; *window assembler 240 in the IMC 140*, Col. 25, lines 66-67; *display list of memory operations to be performed*, Col. 3, lines 60-65), and upon receipt of each of the plurality of display instructions, processing one of the frames to update the display output device (*driver software assembles a new windows ID list pointer and a new windows workspace area for new windows, and the software updates either the windows ID list or the windows workspace area to correspond to changes in existing windows*, Col. 27, lines 4-10).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the device of Banks to include an interface for first receiving a plurality of frames, and second receiving a plurality of display instructions, and upon receipt of each of the plurality of display instructions, processing one of the frames to update the display output device as suggested by Dye because Dye suggests that by using this method, the video display can be updated with new video data without requiring any system bus data transfers (Col. 4, lines 33-47).

7. With regard to Claim 2, Banks does not teach that each of the plurality of display instructions identifies the one frame for processing. However, Dye describes that each of the plurality of display instructions identifies the one frame for processing (*windows ID list which*

*includes a pointer for each window, Col. 26, lines 58-60; driver software assembles a new windows ID list pointer and a new windows workspace area for new windows, Col. 27, lines 4-10).*

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the device of Banks so that each of the plurality of display instructions identifies the one frame for processing as suggested by Dye because Dye suggests that by identifying the one frame for processing, the speed of the graphics display is greatly increased (Col. 4, lines 9-47).

8. With regard to Claim 3, Banks describes that the frames are stored in a first-in-first-out (FIFO) memory (50, Figure 4), and the frames are output from the FIFO to be processed (Col. 5, line 58-Col. 6, line 19). By definition, the FIFO outputs the frames in the order the frames were received, and therefore inherently the frames are processed in order the frames were received.

9. With regard to Claim 4, Banks describes that the frames are stored in a first-in-first-out (FIFO) memory (50, Figure 4; Col. 5, line 58-Col. 6, line 19).

10. With regard to Claim 5, Banks describes using the output drivers (Col. 6, lines 54-67) to update the output display device (*sector drive circuitry 72 generates a 1 kHz refresh frequency, Col. 7, lines 32-45*).

However, Banks does not teach that processing one of the frames comprises sending instructions to update the output display device. However, Dye describes that processing one of

the frames comprises sending instructions to update the output display device (Col. 10, lines 11-22; Col. 26, lines 58-60; Col. 27, lines 4-10). This would be obvious for the same reasons given in the rejection for Claim 1.

11. With regard to Claim 6, Banks describes that the output display device (26, Figure 1) comprises an LED display (Col. 3, lines 4-5).

12. Claims 7-15 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banks (US005796376A) in view of Dye (US006002411A), further in view of Ong (US005986622A).

13. With regard to Claim 7, Banks describes a method of rapidly refreshing a sign display panel (*very fast refresh of an entire sign*, Col. 7, lines 23-24; Col. 1, lines 8-11), the method comprising receiving a plurality of frames (Col. 4, lines 61-65); storing each of the plurality of frames (Col. 5, line 58-Col. 6, line 19); receiving at least one of a plurality of display instructions (Col. 4, lines 61-65); and processing one of the plurality of frames to update a display output device (Col. 7, lines 19-28).

However, Banks does not teach upon receipt of each of the plurality of display instructions, processing one of the frames to update the display output device. However, Dye describes receiving a plurality of frames; storing each of the plurality of frames (Col. 39, lines 12-17; Col. 10, lines 52-63); receiving at least one of a plurality of display instructions (Col. 39, lines 15-29; Col. 3, lines 60-65); and processing, upon receipt of each of the plurality of display

instructions, one of the frames to update the display output device (Col. 10, lines 11-22; Col. 26, lines 58-60; Col. 27, lines 4-10). This would be obvious for the same reasons given in the rejection for Claim 1.

However, Banks and Dye do not teach that the receiving is based on messages. However, Ong describes receiving, based on at least one of a first message, a frame; storing the frame (*data command for screen of video*, Col. 5, lines 2-5; *send data commands, each display unit 111 of the display area interprets these commands and translates them into appropriate pixel values and stores the values in the VRAM* 6, Col. 7, line 66-Col. 8, line 4) receiving, based on a second message, at least one of a plurality of display instructions; a processing, upon receipt of the second message, the frame to update a display output device (*global commands are sent when source devices communicate with all or part of the display units for global requests and actions, global commands include mask request, rest, redraw, erase, colormap distribution/consolidation, display parameter adjustment, block movement and block copy*, Col. 7, lines 39-65).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the devices of Banks and Dye so that the receiving is based on messages as suggested by Ong because Ong suggests that these commands or messages are needed in order for the source device to communicate to the display units what operations it wants the display units to perform (Col. 7, lines 39-45, Col. 7, line 66-Col. 8, line 4).

14. With regard to Claim 8, Claim 8 is similar in scope to Claim 2, and therefore is rejected under the same rationale.



15. With regard to Claim 9, Claim 9 is similar in scope to Claim 3, and therefore is rejected under the same rationale.

16. With regard to Claim 10, Claim 10 is similar in scope to Claim 4, and therefore is rejected under the same rationale.

17. With regard to Claim 11, Claim 11 is similar in scope to Claim 5, and therefore is rejected under the same rationale.

18. With regard to Claim 12, Claim 12 is similar in scope to Claim 6, and therefore is rejected under the same rationale.

19. With regard to Claim 13, Claim 13 is similar in scope to Claim 7, and therefore is rejected under the same rationale.

20. With regard to Claim 14, Banks describes a display unit configured for use in a sign display panel (Col. 1, lines 8-11), the display unit comprising a memory (44, Figure 3; Col. 5, lines 31-37); a display output device (26, Figure 1; Col. 3, lines 55-66); an interface (36, Figure 3) configured to communicate with a controller of the sign display (22; Col. 4, lines 61-67); and a central processing unit (42, Figure 3; Col. 5, lines 11-30) configured to receive, through the interface, a frame of display data (Col. 4, lines 61-65); store the received frame upon receipt

(Col. 5, lines 7-9); receive, through the interface, a display instruction, the display instruction instructing the display unit to display the stored frame (Col. 4, lines 61-65; Col. 5, lines 16-30); and process the one frame to update the display output device (Col. 7, lines 19-28).

However, Banks does not teach storing a plurality of the received frames in the memory upon receipt, and upon receipt of the display instruction, processing one frame of the stored frames to update the display output device. However, Dye describes a central processing unit (102, Figure 2) configured to receive, through the interface (140; Col. 9, lines 9-18), multiple frames of display data; store a plurality of the received frames in the memory upon receipt (Col. 39, lines 12-17; Col. 10, lines 52-63); receive, through the interface, a display instruction (Col. 39, lines 15-29; Col. 3, lines 60-65), the display instruction instructing the display unit to display one frame of the stored frames; and process the one frame to update the display output device upon receipt of the display instruction (Col. 10, lines 11-22; Col. 26, lines 58-60; Col. 27, lines 4-10). This would be obvious for the same reasons given in the rejection for Claim 1.

However, Banks does not teach that the receiving is based on messages. However, Ong describes a processor (4, Figure 1; Col. 5, lines 13-15) configured to receive, one or more messages of a first type, the one or more messages of the first type communicating a frame of display data (Col. 5, lines 2-5); store the received frame in the memory upon receipt (Col. 7, line 66-Col. 8, line 4), receive, a message of a second type containing a display instruction, the display instruction instructing the display unit to display the stored frame; and process the one frame to update the display output device upon receipt of the display instruction (Col. 7, lines 39-65). This would be obvious for the same reasons given in the rejection for Claim 7.

21. With regard to Claim 15, Banks describes that display information containing an address for a particular display unit is sent when storing the frame of display data (Col. 4, lines 61-65; Col. 5, lines 16-30).

However, Banks does not teach that the first message type is a local message. However, Ong describes that the first message type (data commands) is a local message (Col. 7, line 66-Col. 8 line 4; Col. 7, lines 39-45).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the device of Banks so that the first message type is a local message as suggested by Ong because Ong suggests that when storing the frame of display data, each display unit stores a particular display data, and therefore the message is a local message (Col. 7, line 66-Col. 8 line 4).

22. With regard to Claim 17, Banks does not teach that the second type of message is a global message. However, Ong describes that the second type of message is a global message (Col. 7, lines 39-45).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the device of Banks so that the second type of message is a global message because Ong suggests that by using a global message, all of the display units can process the same drawing instruction at the same time (Col. 7, lines 39-65), therefore increasing processing speed.

23. With regard to Claim 18, Banks does not teach that the display unit is configured to identify the one frame based on a frame identifier contained in the display instruction. However, Dye describes the display unit is configured to identify the one frame based on a frame identifier contained in the display instruction (Col. 27, lines 4-10). This would be obvious for the same reasons given in the rejection for Claim 2.

24. With regard to Claim 19, Claim 19 is similar in scope to Claim 18, and therefore is rejected under the same rationale.

25. With regard to Claim 20, Banks describes that the memory comprises a first-in-first out memory (50, Figure 4; Col. 5, line 58-Col. 6, line 19) and the display unit is further configured to display the next frame stored in the memory (Col. 7, lines 1-28).

However, Banks does not teach that the display unit is further configured to display the next frame stored in the memory upon receipt of the display instruction. However, Dye describes the display unit is further configured to display the next frame stored in the memory upon receipt of the display instruction (Col. 10, lines 11-22; Col. 26, lines 58-60; Col. 27, lines 4-10). This would be obvious for the same reasons given in the rejection for Claim 1.

*Allowable Subject Matter*

26. Claims 21-34 are allowed.
27. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

28. The prior art singly or in combination do not teach or suggest the display unit of Claim 15, wherein the display unit is configured to, upon receipt of a local message: check the address; and if the display unit is not the particular unit: decrement the address; and send the local message, with the decremented address, to the other display unit, as recited in Claim 16. The prior art also does not teach a sign display panel comprising a plurality of display units, each display unit respectively comprising a memory; and an interface configured to communicate messages, the method comprising the controller sending multiple frames of display data to the display units, the frames being contained in one or more messages of a first type; the display units respectively receiving and storing a plurality of the frames in memory upon receipt; the controller sending a display instruction to the display units through the interface, the display instruction instructing the display units to display one frame of the stored frames, the display instruction being contained in a message of a second type; the display units respectively processing the one frame to update the display output device upon receipt of the display

instruction, as recited in Claims 21 and 28. Claims 22-27, and 29-34 rely upon Claims 21 and 28, and therefore also contain allowable subject matter.

29. The closest prior art (Banks) teaches a method of rapidly refreshing a sign display panel (Col. 7, lines 23-24; Col. 1, lines 8-11), the sign display panel comprising a controller (22, Figure 1); a plurality of display units (26), each display unit respectively comprising a display output device (Col. 3, line 55-Col. 4, line 3); and an interface (36, Figure 3) configured to communicate from the controller to the display units, the method comprising the controller sending a frame of display data to the display units through the interface; the display units respectively receiving a frame (Col. 4, line 61-Col. 5, line 18); the controller sending a display instruction to the display units through the interface, the display instruction instructing the display units to display the stored frame; the display units respectively receiving the display instruction (Col. 4, lines 61-65; Col. 5, lines 16-30); and the display units respectively processing the one frame to update the display output device (Col. 7, lines 19-28). However, Banks does not teach that each display unit respectively comprises a memory; and the interface is configured to communicate messages, and the display units respectively store a plurality of the frames in memory upon receipt; and upon receipt of the display instruction, the display units respectively process the one frame to update the display output device.

30. Another prior art (Dye) teaches sending multiple frames of display data to the display unit through the interface (140, Figure 2; Col. 9, lines 9-18); the display unit respectively receiving and storing a plurality of the frames in memory upon receipt (Col. 39, lines 12-17; Col.

10, lines 52-63); sending a display instruction to the display unit through the interface; the display unit receiving the display instruction (Col. 39, lines 15-29; Col. 3, lines 60-65); and the display unit processing the one frame to update the display output device upon receipt of the display instruction (Col. 10, lines 11-22; Col. 26, lines 58-60; Col. 27, lines 4-10). However, Dye does not teach that this is for a sign display panel comprising a plurality of display units; and an interface configured to communicate messages.

31. Another prior art (Ong) teaches a processor (4, Figure 1; Col. 5, lines 13-15) configured to receive, one or more messages of a first type, the one or more messages of the first type communicating a frame of display data (Col. 5, lines 2-5); store the received frame in the memory upon receipt (Col. 7, line 66-Col. 8, line 4), receive, a message of a second type containing a display instruction, the display instruction instructing the display unit to display the stored frame; and process the one frame to update the display output device upon receipt of the display instruction (Col. 7, lines 39-65). However, Ong does not teach that each display unit respectively comprises a memory; and the display units respectively store a plurality of the frames in memory upon receipt; and upon receipt of the display instruction, the display units respectively process the one frame to update the display output device.

32. Another prior art (Edmonds US 20020118144A1) teaches that each display unit (26, 28, Figure 2) respectively comprises a memory (27, 29), and each display unit has an interface circuit (23, 25), and each interface circuit has an assigned address, and accepts only those data transmissions from graphics controller 22 which contain the address. Transmissions with any

other address are ignored or passed by that device. The interface 23 for one display unit can receive a communication from graphics controller 22 and retransmit the communication to the interface 25 for the next display unit over a daisy-chain connection. The daisy-chain connection is implemented with serial data transmission [0013]. The addresses are transmitted through messages [0022]. However, Edmonds does not teach communicating and storing multiple frames of display data:

### ***Prior Art of Record***

The following prior art not relied upon is considered pertinent to Applicant's invention.

Edmonds (US 20020118144A1) teaches a method for allowing multiple display devices to be updated through a single display controller port over a single daisy-chain connection [0013].

### ***Conclusion***

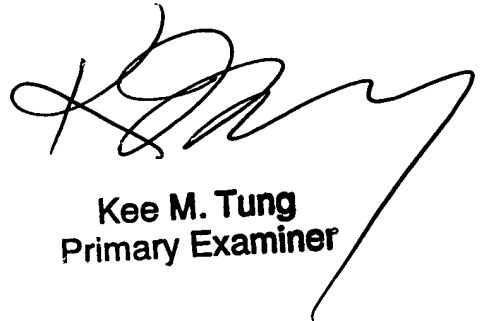
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joni Hsu whose telephone number is 571-272-7785. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JH



**Kee M. Tung**  
**Primary Examiner**